

# Motor Protection Thermistors

Code No.: 309-201...209



## THERMOSPEED

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### 309-201...209

The range of motor protection thermistors are manufactured to conform to BS4999 Part 72. The sensing component is a doped barium titanate disc approximately 3mm diameter x 1mm thick. The ceramic pellet is provided with flying leads and an electrically insulating coating to provide complete isolation from the motor winding. The rapid increase in electrical resistance is set during manufacture to produce a range of components with "switching" temperatures at 10°C intervals from 70°C through to 180°C.

## Specifications

Temperature	Resistance	Test Voltage (D.C.)
Tr	1000 ohms Typical	2.5V
Tr -5°C	550 ohms Max.	2.5V
Tr +5°C	1330 ohms Min.	2.5V
Tr +15°C	4000 ohms Min.	7.5V
-20°C to Tr -20°C	250 ohms Max.	0.1V

Tr is the reference or "switching" temperature of the device. The specification infers a rate of increase of resistance from Tr -5°C to Tr +5°C of 15% per °C. In practice this will be between 20% and 60%, depending on the type of device.

### Lead Wire

7/15 silver coated copper conductors, P.T.F.E. insulated to BSG210 Type B (500V working). The lead colours identify the switching temperature of the device, as B.S. approved. Lead length is either 200mm or 500mm as standard.

### Thermistor Bead Insulation

The primary insulation is epoxy resin, with a shrink sleeve for added mechanical and electrical protection. Devices with temperature ranges from 70°C to 160°C have a "Kynar" sleeve, those from 170°C have a "PTFE" sleeve.

### Insulation Rating

Thermistor leads to thermistor bead insulation 2500V. R.M.S.

### Adhesion of soldered joint to ceramic substrate

Without bead insulation - Peel test 500gms  
- Shear test 1000gms

### Limiting Ratings

Operating Temperature range : 20°C to 180°C (or Tr +20°C whichever is the greatest).

Maximum voltage for temperature sensing : 2.5V DC.

## Order Codes

Code No.	Transition Temperature	Lead Colours
309-212	70°C	white/brown
309-201	80°C	white/white
309-211	90°C	green/green
309-202	100°C	red/red
309-210	110°C	brown/brown
309-203	120°C	grey/grey
309-204	130°C	blue/blue
309-205	140°C	blue/white
309-206	150°C	black/black
309-207	160°C	red/blue
309-209	170°C	white/green
309-208	180°C	white/red

### Recommended Reference Temperatures for Thermistors

Class	Tripping	Warning
E	130°C	110°C
B	140°C	120°C
F	160°C	140°C

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